

C. IMPACT ANALYSIS

C.1 IMPACT ANALYSIS METHODOLOGY

The Draft EIR (in its Section C) included analyses of the 11 environmental issue areas listed below:

Air Quality	Noise
Biological Resources	Public Health, Safety, and Nuisance
Cultural Resources	Socioeconomics and Public Services
Geology and Soils	Transportation and Traffic
Hydrology	Visual Resources
Land Use and Public Recreation	

In this Supplemental DEIR, each of the above issue areas is analyzed for potential impacts of the new and revised alternatives. In cases where no impact would occur, the rationale for not including a specific issue area is explained.

Environmental Baseline. In Draft EIR Section C, there is a detailed description of the existing physical setting wherein the proposed project or alternatives would be placed. The applicable government rules, regulations, plans, and policies are also presented in the environmental baseline section. For the purpose of this document, and pursuant to CEQA Guidelines, the baseline used for the impact analysis reflects the actual conditions at the time of preparation of the Draft EIR. Because the changes to alternatives evaluated in this Supplemental Draft EIR are within the same study area as the proposed project and Draft EIR alternatives, the environmental baseline is not repeated in this Supplemental Draft EIR.

Environmental Consequences. The environmental consequences and potential impacts that the proposed project or alternatives would bring to each issue area were quantified in the Draft EIR, and this analysis is performed again in this document for the new/revised alternatives. Mitigation measures for each impact are identified, where feasible, and the residual impact is assessed.

Significance Criteria. The impacts identified by applying the assessment methodology were compared with predetermined, specific significance criteria, and classified according to significance categories listed in each issue area (see Draft EIR Section C.1.4 for discussion of significance criteria). Impacts found to be significant and unavoidable or unmitigable to a less than significant level were identified. The same methodology was applied systematically to each alternative route alignment.

While the criteria for determining significant impacts are unique to each issue area, the classification of the impacts was uniformly applied in accordance with the following definitions:

Class I:	Significant; cannot be mitigated to a level that is not significant
Class II:	Significant; can be mitigated to a level that is not significant
Class III:	Adverse, less than significant

Class IV: Beneficial impacts.

Applicant Proposed Measures. PG&E Co. has incorporated a number of measures and procedures into the description of the proposed project that would avoid or reduce impacts. In the assessment of the impacts, these measures have been assumed to be part of the proposed project, and their implementation will also be monitored by the CPUC. The Applicant Proposed Measures that could reduce the potential impacts in an issue area (such as air quality, biology, etc.) were listed in each issue area's discussion in the Draft EIR.

Mitigation Measures. Numerous mitigation measures were proposed in the Draft EIR, and several more are included or modified in this Supplemental Draft EIR. The mitigation measures recommended in both documents will be presented in a comprehensive Mitigation Monitoring, Compliance, and Reporting Program will be included in the Final EIR.

C.2 US DATAPORT SUBSTATION ALTERNATIVE

The following paragraphs address the difference in environmental impact between PG&E Co.'s proposed substation site (which is analyzed in detail in the Draft EIR) and the US DataPort Substation Alternative.

C.2.1 Air Quality

The US DataPort Substation Alternative would not require the demolition of existing greenhouse structures because no structures exist at this location. As a result, the construction of the substation would result in less air quality impacts than the proposed site. Mitigation Measure A-4, which would protect against release of asbestos fibers during demolition (identified as a potentially significant [Class II] impact in the Draft EIR), would not be required for the US DataPort Substation Alternative. It is noted, however, that this alternative would only be implemented if the US DataPort project were approved by the City of San Jose, and the greenhouse structures would be demolished for that project. The cumulative air quality emission of both projects would exceed those of either project individually.

Mitigation Measures A-1 through A-3 would apply to the US DataPort Substation Alternative to reduce dust and small particulate emissions during construction. Implementation of these mitigation measures would reduce the potentially significant (**Class II**) impacts associated with substation construction to less than significant levels.

C.2.2 Biological Resources

Similar to the proposed substation site, the US DataPort Substation Alternative has few significant biological resources. As discussed in Draft EIR Section C.3.2.5, grassland species such as the burrowing owl and loggerhead shrike may occasionally forage on the proposed substation site and the

US DataPort Substation Alternative. Specific potential impacts include electrocution of birds (adverse but not significant impact, **Class III**, based on PG&E Co.'s Applicant Proposed Measure 10.26a) and impacts to special status species, which would be reduced to less than significant levels with implementation of Applicant Proposed Measures 10.17a (burrowing owl protection), 10.23a (raptor protection), and 10.25a (predation).

C.2.3 Cultural Resources

One recorded cultural resources site, CA-SCI-528, was identified in the vicinity of the proposed substation. The same site could be affected by the construction of the substation if it were constructed at the US DataPort Substation Alternative location. However, as explained in the Draft EIR (Section C.4.1.5), this site appears to have been destroyed during the past 15 years, as it was not observed during the archaeological monitoring for the construction of the South Bay Water Recycling Project facilities (which are located in the same area as the US DataPort Substation Alternative). Therefore, there is no difference between the two sites in terms of cultural resources impacts: both have potentially significant (**Class II**) impacts that can be reduced to less than significant levels with implementation of recommended mitigation. Mitigation Measures C-1 and C-2 would apply to both sites; these measures would protect cultural resources discovered during construction.

C.2.4 Geology, Soils, and Paleontology

Geologic setting and geotechnical concerns related to the US DataPort Substation Alternative would be identical to those of the proposed site. Mitigation Measures G-1 through G-3 (geotechnical and soil surveys) would still apply. Both sites would result in the conversion of agricultural soils to non-agricultural use, a significant and unavoidable (**Class I**) impact. The two projects together would result in a significant cumulative impact, resulting in an even greater loss of agricultural land.

C.2.5 Hydrology and Water Quality

Draft EIR Section C.6.2.5 describes the potential hydrologic impacts of the proposed substation site. The US DataPort Substation Alternative is at the same elevation, but about 500 feet further from Coyote Creek and therefore, may have a slightly smaller flood risk. However, this change is not substantial in terms of impacts; the overall impacts of both sites are very similar. As for the proposed substation site, in order to reduce potential impacts to less than significant levels (**Class II**), the following measures should be implemented for either site: Mitigation Measures H-2 (site-specific stormwater pollution prevention plan), H-4 (construction site Best Management Practices), H-7 (flood impact), and H-8 (spill prevention).

C.2.6 Land Use and Public Recreation

As stated in the Draft EIR, the proposed Los Esteros Substation site is on an isolated parcel of land in unincorporated Santa Clara County land, and the US DataPort Substation Alternative is located within the City of San Jose, in an area governed by the *Alviso Specific Plan*. The Specific Plan land use map designates the US DataPort Substation Alternative site as Public/Quasi Public. As noted in the Draft EIR, this designation is for public land uses such as libraries, community centers, schools, fire stations, post offices, and the City of San Jose/Santa Clara County Water Pollution Control Plant (WPCP) and its buffer lands. Lands used by particular private institutions are also designated Public/Quasi-Public, such as churches and the Alviso Family Health Clinic. A substation would be an appropriate use within this designation. The site is zoned M-1 (Light Manufacturing) by the City of San Jose. The M-1 district allows a broad range of non-hazardous industrial uses and conditional uses; public utility facilities are among the permitted uses. Therefore, development on the US DataPort Substation Alternative site does not appear to conflict with the zoning and land use designations.

The potential effect of this alternative substation site on nearby residents would depend on the timing of construction on this parcel with respect to the timing of construction of the DataPort facility. If the existing residents on the north end of the proposed substation site (which would be developed by US DataPort under this alternative scenario) were to remain during construction of the substation, they would experience slightly greater impacts from construction noise and dust, due to their closer proximity to the site. (Since these residents are located on the proposed substation site and would be displaced by it, they were not considered as receptors under the proposed project.) However, because the US DataPort facility is likely to be constructed before, or concurrent with, the PG&E Co. substation, it is likely that the residents would have vacated the site prior to the construction of either facility. Therefore, the construction impacts to residential receptors would be completely eliminated. Assuming the timing of the two projects would unfold in this manner, the operational impacts relating to the visual intrusion of the towers and power lines would also be eliminated. In the less likely event the adjacent residents remained during construction, the impacts of construction disturbance would be adverse, but not significant (**Class III**).

The US DataPort Substation Alternative would also have impacts on recreation similar to those of the proposed substation site. It is assumed that the same access road from Zanker Road (intended for a future trail alignment) would be used for either substation location, and therefore, the potential impact on access by future trail users identified in the DEIR and corresponding Mitigation Measure L-9 would still apply. Visual and noise impacts on recreational trail users would be greater with the US DataPort Substation Alternative because a trail alignment would pass immediately adjacent to the substation instead of about 1,500 feet north of it. However, this trail segment passes immediately adjacent to sludge ponds and control facilities for the wastewater treatment plant, and therefore does not offer views of pristine landscape. Because the substation would be screened by vegetation, as is required by the City of San Jose and mitigation identified in the DEIR for visual impacts (see Mitigation Measure V-2 as modified below in Section C.2.11), this impact would be adverse, but not

significant (**Class III**).

C.2.7 Noise and Vibration

Draft EIR Section C.8.2.5 addresses noise impacts associated with construction or operation of the proposed substation. As discussed in the land use section above, it is likely that the current residents of PG&E Co.'s proposed substations site will have moved before construction begins. In that case, there would be no sensitive noise receptors located within 2,500 feet of either the proposed or US DataPort Substation Alternative sites, and the US DataPort site is slightly further away from the nearest identified receptors. Therefore, while noise impacts would not be significant (**Class III**) for either site, the US DataPort Substation Alternative would be slightly preferred in terms of noise. (Note that noise impacts to recreational trail users are considered in Section C.2.6).

C.2.8 Public Health, Safety, and Nuisance

There would be no difference between the proposed substation site and the US DataPort Substation Alternative with respect to public health issues, including electric and magnetic fields.

C.2.9 Socioeconomics and Public Services

Potential impacts to population and housing, employment, and the local economy would be the same with the proposed substation site as with the US DataPort Substation Alternative. The alternative would not require any additional tower structures within the WPCP facility. However, the US DataPort Substation Alternative is located on agricultural lands owned by the City of San Jose and used for disposal of treated water, which is an important function as a result of an U.S. Environmental Protection Agency order that such water not be released directly to the San Francisco Bay. The removal of 24 acres from use by the City water disposal would be a potentially significant impact, aggravated by the cumulative impact of US DataPort's development proposal that would remove even more City acreage from disposal use.

The development of the US DataPort facility adjacent to the PG&E Co. substation would also result in cumulative impacts with respect to electric service. The proposed project would provide increased electrical service of about 700 megavolt amps (MVA), which is needed to serve rapid growth in the San Jose/Santa Clara area (as documented in Draft EIR Section A.2). Of particular note as demonstration of this load growth, the US DataPort facility itself would consume about 200 MW of electricity, which would be partially offset by an onsite cogeneration facility producing about 50 MW, for a net additional load of about 150 MW.

C.2.10 Transportation and Traffic

Both substation sites would require construction and operational access off Zanker Road. There is no difference between the two sites in the traffic and transportation issue area.

C.2.11 Visual Resources

Relocation of the proposed Los Esteros Substation site slightly to the northwest would result in visual impacts similar to those already described in the Draft EIR for Los Esteros Substation (Key Viewpoint 5) and the Zanker Road portion of the Westerly Alternative (Key Viewpoint 14). Therefore, the visual impact of the US DataPort Substation Alternative would be considered adverse but not significant (**Class III**), the same as the proposed substation site. However, to ensure minimal impacts on the trail users that would be closer to the substation site, Draft EIR Mitigation Measure V-2 is modified as follows (this modification applies to both the proposed site and the US DataPort Substation Alternative):

- V-2** PG&E Co. shall develop and implement a landscaping plan for the Los Esteros Substation or US DataPort Substation Alternative (as appropriate). Vegetation shall be of a density and height necessary to effectively screen views of the lower portion of the substation from Highway 237 to the south, Zanker Road to the west, and the Bay Trail, immediately to the north. Minimum vegetation height shall be determined based on consultation with the City of San Jose's Department of Planning, Building, and Code Enforcement. The plan shall be submitted for approval to the CPUC prior to the start of construction and after the required consultation is concluded.

C.2.12 Summary Comparison of Proposed Substation Site with US DataPort Substation Alternative

The Draft EIR found that the proposed substation site was environmentally superior to both the Zanker Road Substation site and the Northern Receiving Station Substation site. This section summarizes the comparison of the proposed substation site to the adjacent US DataPort Substation Alternative. The following bullets summarize the comparison of the proposed and US DataPort Substation Alternative in the 11 environmental disciplines considered in the EIR:

- There is essentially no difference between the two sites in six disciplines: biological resources; cultural resources; geology and soil; public health, safety, and nuisance; transportation; and visual resources.
- The proposed substation is preferred over the US DataPort Substation Alternative in the areas of recreation (due to its increased proximity to the Bay Trail that would run between the WPCP and the substation) and socioeconomics and public services (due to the elimination of treated water disposal lands).

- The US DataPort Substation Alternative is slightly preferred over the proposed substation in four disciplines: air quality, noise, hydrology, and land use.

In conclusion, there is no significant overall difference between the proposed substation site and the US DataPort Substation Alternative.

C.3 NORTHERN UNDERGROUND ALTERNATIVE

The major impacts evaluated for underground transmission lines are construction impacts, and the elimination of visual impacts for comparable aboveground routes. These types of impacts are also described in the Draft EIR in its analysis of the Underground Through Business Park Alternative.

C.3.2 Air Quality

Any underground alternative has far greater air emissions than an overhead transmission line alternative due to the need for trenching (of two parallel trenches) in comparison to installation of towers every 1,000 feet. The trenching work itself requires use of heavy equipment with emissions from diesel engines, and the movement of large quantities of soil results in the release of small particulates (dust). Therefore, the I-880-A (overhead) route is preferred over this underground alternative.

C.3.3 Biological Resources

The Northern Underground Alternative could affect biological resources during both construction and operation. Construction impacts from trenching and vehicle operation in the 50- to 60- foot right-of-way would likely result in direct mortality to common small mammals and reptiles in the construction area. This would be considered an adverse but less than significant impact (**Class III**) which would be reduced by implementation of Mitigation Measures B-1 through B-3.

This alternative route is within a few hundred feet of known tiger salamander habitat. Therefore, there is the potential that construction activities could unearth or kill estivating California tiger salamanders (a federal candidate for listing and CDFG Species of Special Concern). This potentially significant impact (**Class II**) would be reduced to less than significant levels with implementation of Mitigation Measure B-2a:

- B-2a** If the Northern Underground Alternative is approved, for all construction within the Pacific Commons Preserve, PG&E Co. shall install a temporary salamander barrier between the construction area and the rest of the Preserve. Using pitfall traps, salamanders shall be trapped out of the construction area along the barrier and relocated to the Preserve. These efforts shall be conducted by a qualified biologist approved by and working closely with the California Department of Fish and Game (CDFG). Reports shall be provided to the CPUC

on a monthly basis documenting coordination with CDFG and the results of the trapping/relocation effort.

Operational impacts to biological resources could result from increased ground temperatures in the vicinity of the underground line (temperatures close to the cables would be about 90°C, decreasing with distance from the line). Increased ground temperatures could affect the moisture content of California tiger salamander estivation sites in spring, summer, and early fall. Accelerated underground moisture loss during the dry season could cause dehydration of salamanders in their summer retreats. Since the underground line's level of impact on ground temperatures is not quantified, the significance of this impact is difficult to determine. Depending on the distance this heat radiates from the line, this impact may be avoided by trapping out salamanders from the easement area, and excluding them from the easement with a permanent barrier. Although a permanent barrier would likely reduce temperature impacts to salamanders, it would result in the loss of a small area of potential estivation habitat. Implementation of Mitigation Measure B-2b is recommended.

B-2b If the Northern Underground Alternative is approved, for all construction within the Pacific Commons Preserve, PG&E Co. shall employ a biologist approved by the CDFG to evaluate the potential for heat to affect tiger salamander habitat. The biologist shall consult with PG&E Co., the U.S. Fish and Wildlife Service, and CDFG to determine the potential for heat impact. If impacts are determined to be likely, a trapping and relocation program, and installation of a permanent barrier shall be implemented prior to energizing of the line. Consultation and resulting actions shall be documented to the CPUC.

The southern two-thirds of this alternative would be located within streets, and therefore would not have biological impacts. The one segment of this alternative that would result in habitat disturbance during construction is the approximately 0.5-mile long portion through the proposed Pacific Commons Preserve. With a 50-foot wide construction right-of-way, construction of this alternative would disturb between 5 and 10 acres of ground surface. However, in the area adjacent to the I-880 Freeway, there is an existing easement that will remain in force even when the Preserve is taken over by the National Wildlife Refuge. This easement allows driving access to the Auto Mall sign at the eastern corner of the Preserve. Therefore, installation of the underground lines in the vicinity of the easement would not prevent habitat restoration or the development of vernal pools: while these restoration activities will be underway on the rest of the Preserve, they could not be implemented on the access easement.

This underground alternative would eliminate the significant and unavoidable risk of bird collision associated with the proposed project route. The I-880-A Alternative was determined to have adverse (less than significant) bird collision impacts, and this alternative would eliminate this adverse impact, but its construction and operation would create potentially significant impacts to the tiger salamander.

The San Francisco Bay National Wildlife Refuge has indicated that this alternative would likely be found compatible with refuge purposes, given its location at the edge of the Preserve and the elimination of bird collision risk (Morris, 9/21/00, personal communication).

C.3.4 Cultural Resources

This alternative would involve construction of two trenches along Christy Street, through the Pacific Commons Preserve, and along Northport Loop, Cushing Parkway, and Fremont Boulevard. While no recorded resources are located in these areas, this extensive ground disturbance could expose previously unknown cultural resources. Mitigation Measures C-1 and C-2 should be required for this alternative, and would reduce potential impacts to less than significant levels (**Class II**). The I-880-A Alternative is preferred over this alternative due to its limited ground disturbance.

C.3.5 Geology and Soils

Geologic impacts for this alternative would include soft or loose soils, high water table, corrosive soils, surface fault rupture, liquefaction potential, and potential differential settlements due to strong ground shaking. The soils along this alternative are young alluvium, which in places may overlie bay mud deposits. Young alluvium overlying bay mud may be unsuitable as foundation materials without application of Mitigation Measure G-1 (which requires geotechnical studies and specific engineering techniques such as piers or pilings, depending on the findings of the studies).

This alternative crosses the potentially active eastern segment of the Silver Creek fault in one location, similar to the proposed segment it would replace, but the buried transmission line would be subject to potential surface rupture. As stated in Draft EIR Section C.5.2.4.2, Seismic Hazards, since the Silver Creek fault is believed to be potentially active (but not active), there is very low potential for surface rupture along this fault, so this impact would be less than significant (**Class III**).

The Northern Underground Alternative avoids crossing the stream channels and tidal flatlands that are crossed by the proposed route, so there would be less risk of lateral spreading along this route than the proposed route. In addition, since the alignment is largely within existing roadways the potential for differential settlements would be greatly reduced. Mitigation Measures G-1, G-2, and G-3 would apply to the Northern Underground Alternative, and would reduce the impact of lateral spreading to less than significant levels (**Class II**).

Due to the soil conditions in the area, particularly in the northernmost mile of this alternative, there is the potential for liquefaction along this alternative. This is also true of the proposed route in its northern segment. However, because the Northern Underground Alternative would be completely underground and the concrete duct bank could be damaged if liquefaction occurs, this impact is considered to be significant (**Class I**), even with implementation of Mitigation Measure G-1.

Because of the soil conditions, fault crossing, and liquefaction potential, both aboveground routes are preferred over the Northern Underground Alternative. As stated in the Draft EIR, the I-880-A Alternative is preferred over the proposed route.

C.3.6 Hydrology

Construction of an underground route requires the excavation of two six to seven foot deep trenches along the entire length of this alternative. The excavation of this abundant amount of earth material could lead to the transport of sediment into the local drainage system. The application of Mitigation Measure H-2 (sediment management and erosion control) would reduce this impact to a less than significant level (**Class II**). Water contamination impacts due to potential fuel spills, machinery operation, and trenching could have a significant impact but are avoidable through Mitigation Measures H-2, H-3, and H-4, which would minimize surface water contamination during construction.

Potential impacts to groundwater are significant considering the length of the trenching activities and the shallow depth to groundwater. Groundwater contact in the project region occurs on average between 5 and 20 feet below the surface in the project area. Depending upon runoff/recharge conditions, tidal conditions, and proximity to the bay, the depth to groundwater may even be shallower than five feet. Since trenching practices typically are six to seven feet deep, the potential for direct groundwater contact across the length of the trench represents a significant impact to groundwater hydrology. The application of Mitigation Measure H-9 (which requires evaluation of areas with shallow groundwater) would reduce this impact to a less than significant level (**Class II**).

Potential impacts to groundwater hydrology either due to historical land-uses or construction-related contamination would be significant, yet could be reduced to a less than significant level (**Class II**) through the application of Mitigation Measure H-6, which requires evaluation and treatment of potentially contaminated groundwater.

Surface water impacts associated with the Northern Underground Alternative are not more significant than the impacts caused by an overhead route. However, impacts to groundwater hydrology and water quality are potentially greater with an underground alternative. The overall impacts associated with the underground route would be greater than the tower construction activities because of the required length of the continuous trench and the potential for shallow groundwater in the area.

C.3.7 Land Use and Public Recreation

The land use policies, designations, and zoning districts are the same as those described for the I-880-A Alternative. Land uses are generally light industrial, with the exception of the route portion through the Pacific Commons Preserve, which is open space.

The construction of this alternative would cause impacts related to noise, dust, and parking on business park occupants along Christy Street, Northport Loop East, Cushing Parkway, and Fremont Boulevard. While these streets (aside from Fremont Boulevard) are not heavily used, each provides the only access to the business park occupants located on these streets.

There is little or no recreational opportunity along this route segment that would be affected by either the aboveground or underground routes. When compared to the I-880-A Alternative, the construction of this underground route is considered to have slightly greater overall impacts. But the Northern Underground Alternative is preferred over the proposed route, which has much greater long-term impact on recreational trail users and a greater length through the Pacific Commons Preserve.

C.3.8 Noise

Noise and vibration impacts resulting from construction of this underground alternative would be substantially greater than for an overhead line for two reasons. First, much of this route would be located within roadways, so construction would require jack-hammering and removal of roadway surfaces prior to trenching. Second, the continuous trenching required for the underground line would create ongoing noise affecting adjacent land uses (business park occupants), whereas an overhead line would have construction noise centered only at tower locations. Implementation of the mitigation measures described for the proposed route would reduce noise impacts to less than significant levels (**Class II**), but these impacts would still be greater than for any overhead route.

C.3.9 Public Health, Safety, and Nuisance

Underground transmission lines have greater field strengths than overhead lines when the receptor is very near the buried line, but the field strengths decline quickly with distance from the right-of-way. Increasing burial depth by one or two feet can reduce field strength considerably; this is a measure that may be considered by PG&E Co. to mitigate EMF emissions from an underground transmission line (see Section C.8 regarding EMF mitigation).

C.3.10 Socioeconomics and Public Services

The construction of an underground line has the potential to temporarily disrupt public services if utility lines are damaged or broken. The aboveground routes (the proposed route or the I-880-A Alternative) have substantially less likelihood of affecting underground public service facilities.

C.3.11 Transportation and Traffic

This alternative would be located within existing roadways along the majority of the segment (in Christy Street, Northport Loop East, Cushing Parkway, and Fremont Boulevard). The trenching

needed to construct this alternative is expected to have a substantial and prolonged impact on the physical condition of the roadways and on traffic flows.

Similar to the Underground Through Business Park Alternative (evaluated in the Draft EIR), the total workforce would be larger than for the (overhead) proposed project (about 163 instead of 93), and therefore, construction worker traffic would be incrementally increased. However, considering the temporary nature of construction and the dispersal of construction sites, the worker traffic impacts are not expected to be substantially different from the proposed project. Street parking would likely be eliminated during construction in roadways.

Construction activities and vehicles could damage road surfaces and disrupt traffic flows. Along the 1.5-mile long section of Fremont Boulevard, which is the major access road to the business park area, the daily traffic volume is 11,214 vehicles. Therefore, impacts to business park employees and service providers are potentially significant. These impacts can be mitigated to less than significant levels by appropriate mitigation measures (Draft EIR measures T-1 through T-5, T-7 and T-8) described for the proposed project (**Class II**). However, this underground alternative would have substantially greater traffic impacts than the overhead I-880-A Alternative that would avoid construction within roadways.

C.3.12 Visual Resources

Short-term construction activities would cause adverse but not significant (Class III) visual impacts, as described in Draft EIR Section C.12.2.5. However, these temporary impacts would be offset by the long-term elimination of overhead lines and towers. As a result, the Northern Underground Alternative is preferred over both the I-880-A Alternative and the proposed 230 kV route.

C.3.13 Conclusion

The Northern Underground Alternative, due to the extensive (but temporary) construction impacts, is less desirable than either the proposed route or the I-880-A Alternative in the following six environmental issue areas: air quality, cultural resources, hydrology, noise, public services, and transportation.

In the area of geology and soils, the potential for liquefaction in the northernmost mile of the route presents a significant risk (unavoidable Class I impact) to the underground lines.

In the key environmental areas of land use, visual resources, and biological resources, the findings were as follows:

- **Land Use and Recreation:** The Northern Underground Alternative is slightly preferred over the proposed route because this alternative would eliminate adverse (but less than significant) impacts associated with the I-

880-A Alternative. It is preferred over the Northern Underground Alternative.

- **Visual Resources:** The Northern Underground Alternative would eliminate the adverse (but less than significant) impact of the I-880-A Alternative, and is therefore preferred over both the proposed route and the I-880-A Alternative.
- **Biological Resources:** The Northern Underground Alternative would have potentially significant but mitigable (Class II) impacts to tiger salamander, whereas the I-880-A Alternative would have adverse (less than significant) impacts from bird collision. Both alternatives are preferred over the proposed route.

The Northern Underground Alternative is clearly environmentally superior to the proposed route. However, there is less of a clear distinction between the Northern Underground Alternative and the I-880-A Alternative. While the Northern Underground Alternative would eliminate adverse impacts in land use and visual resources, the cost and construction disturbance associated with this alternative may exceed the value of the long-term impact reduction. In addition, the liquefaction risk is significant, potentially jeopardizing the reliability of this critical new transmission line to the northeast San Jose area. In conclusion, the I-880-A Alternative is considered to be superior to the Northern Underground Alternative, though not by a substantial amount.

C.4 I-880-A ALTERNATIVE CONNECTION TO PROPOSED ROUTE

This reroute would result in the I-880-A Alternative route moving a few hundred feet west, but it would still be located within the salt ponds/open space south of Cushing Parkway and north of the Bayside Business Park. Because the reroute is approximately the same length as the original I-880-A Alternative and the reroute would be entirely in open space, there would be no difference in impact for most environmental disciplines. The disciplines not analyzed (and the reasons for not evaluating those impacts) are: air quality (both routes are the same length); cultural resources (no sites are identified along either route); geology, minerals, and paleontology (the same soils and hazards would be encountered); hydrology and water quality (hydrologic conditions are consistent between both routes); noise and vibration (noise receptors would be the same for either route); public health, safety, and nuisance (same distance to occupied structures); socioeconomics and public services (no services affected); and traffic and transportation (no roads would be affected by either route).

The following paragraphs include analyses of the impacts of this reroute in the areas of biological resources, land use and recreation, and visual resources.

C.4.1 Biological Resources

While the new 230 kV towers would line up with existing 115 kV towers in this reroute, the height of the new towers would still be considerably higher than the existing towers over most of this 1 mile segment. The ponds west of the northern end of the Bayside Business Park are high bird use areas, and while the birds may have become accustomed to the heights of the existing towers, the new

towers (at 15 to 75 feet taller) would still pose a significant collision risk. Therefore, the impacts of the I-880-A Alternative, when combined with the proposed route, would still be significant (**Class I**).

C.4.2 Land Use and Recreation

The realignment of the I-880A alternative as suggested by PG&E Co. would not appreciably alter the analysis in the DEIR with respect to land use, planning, and recreation issues. The central part of the revised alternative would be an improvement visually over the original alternative, thereby marginally reducing the visual impact on trail users, but not enough to eliminate the adverse impact identified for the original alternative.

C.4.3 Visual Resources

The Applicant-proposed realignment of the referenced portion of I-880-A would not substantially lessen the visual impact of this portion of I-880-A or change the outcome of the comparison of alternatives for visual resources. In addition to the differences in tower height (up to 75 feet) and construction type (tubular steel versus existing lattice towers) that would be clearly visible, this new alignment still requires two new spans across current open space: between the first and second towers south of Cushing Parkway, and between the fourth and fifth towers.

As described above, PG&E Co.'s suggested reroute does not present a visual advantage over the original I-880-A Alternative. For visual resources, the preferred alignment across these salt ponds would be to adopt the DEIR's Mitigation Measure V-3, which is slightly modified below and illustrated on Figure B-3.

V-3 At the point where the I-880-A Alternative intersects the Newark-Montague and Newark-Milpitas/Dixon Landing 115kV Lines, the I-880-A Alternative should turn southeast to parallel the 115 kV lines to the north end of Bayside Business Park. At this point, the 230 kV line would either (a) turn west to re-connect to the Proposed Route just north of MP 2.7, or (b) connect to the Underground Through Bayside Business Park Alternative Route, which would begin at the north end of the Bayside Business Park.

The 600-foot east-west route adjustment that would be required if the V-3 route were connected to the proposed route (at the boundary between the business park and the salt pond) would create the need for two angle towers. However, this route would be substantially less visually intrusive than the two diagonal alignments (between the two established corridors) through open terrain as proposed in PG&E Co.'s proposed modification to I-880-A Alternative.

C.4.4 Conclusion

The suggested reroute is not preferred over the original I-880-A Alternative because it does not eliminate any of the impacts associated with the alternative route through the salt pond area. However, if the CPUC approves the I-880-A Alternative in combination with either the proposed route or the Underground Alternative, the salt pond crossing defined in Mitigation Measure V-3 is recommended.

C.5 MODIFIED I-880-B ALTERNATIVE

The following sections compare the impacts of the original I-880-B Alternative with the Revised I-880-B Alternative in each environmental discipline that would have different impacts from the I-880-B Alternative considered in the Draft EIR. For several disciplines, there would be no difference in impact between the two routes. As a result, there is no discussion of the following topics: air quality, biological resources, cultural resources, geology and soils, public health, safety, and nuisance, and public services.

C.5.1 Hydrology and Water Quality

The Draft EIR identified a potentially significant impact (Class II) for the I-880-B Alternative associated with the proximity of the route to the Alameda County Flood Control Channel. Mitigation Measure H-10 was recommended to ensure that the final design of the route maintained a 50-foot distance from the channel. The realignment of the I-880-B Alternative as illustrated in Figure B-4 would eliminate the potential impact to the flood control channel because the route at its southern end has been relocated to the west.

The route changes in the northern and central areas of the business park would result in no additional impacts in terms of hydrology. Because of the elimination of concerns related to the flood control channel, this new alignment is preferred over the original I-880-B Alternative.

C.5.2 Land Use and Public Recreation

The impacts identified in the DEIR for the I-880-B Alternative would essentially be the same under the revised I-880-B Alternative. However, some of the construction and operational impacts could be incrementally greater under the revised alternative. Increased short-term construction noise levels would be experienced by businesses located along Lakeview Boulevard, as well as at the northernmost hotels adjacent to Landing Parkway. Businesses on the west side of Lakeview Boulevard that, under the original alternative, would have been acoustically screened by buildings on the east side of the street, would be unscreened and closer to construction activities under the revised alternative. This would also be true at the south end of the business park, where Lakeview Boulevard

veers southwest. However, the imposition of short-term noise impacts on these land uses would be associated only with construction of individual towers and conductor stringing operations, and are considered to be adverse but not significant (Class III), as for the original route of this alternative.

C.5.3 Noise and Vibration

The distance of tower construction from occupied buildings would be very similar in both cases. As discussed in Land Use (Section C.5.2), some building occupants could experience increased noise due to the relocation of towers to Lakeview Boulevard. However, these are not considered to be sensitive receptors, and noise would be a short-term disturbance. A variety of Applicant Proposed Measures would be used in either case to minimize noise and vibration impacts to adjacent businesses. Impacts in either case would be adverse, but not significant (**Class III**).

C.5.4 Transportation and Traffic

The Draft EIR recommended implementation of Mitigation Measure T-10 to eliminate potential conflicts between the Caltrans I-880 Warren Avenue/Mission Boulevard interchange. This modification of I-880-B Alternative would eliminate the need for implementation of T-10, as its requirements have been incorporated into the revised alternative. Therefore, this revised alternative eliminates a potentially significant impact of the original alternative, which is an advantage of this reroute.

The modification to the I-880-B Alternative would result in the construction of this alternative along (but not within) roadways for approximately 6,000 feet more than the previously described alternative. This would involve construction of six or eight towers along public streets, where previous this tower construction would have been in or behind parking lots. Therefore, while the overall impact of the revised I-880-B Alternative would cause adverse but not significant impacts (**Class III**), there would be slightly more disturbance to traffic under the new route using more of Lakeview Boulevard and Landing Parkway. Overall, due to the reduced conflict with Caltrans plans and the slight increase in construction disturbance to traffic, there is found to be no significant difference between the two routes.

C.5.5 Visual Resources

The adjustments to the I-880-B Alternative slightly reduce the visual impact to motorists on I-880 because the towers would be located further from the freeway. However, this change would slightly increase the impact to some businesses along the re-route because the towers would be located within the business park and not along its eastern edge. The net visual impact would be the same as that identified for the original I-880-B Alternative: adverse but not significant (Class III) impacts.

C.5.6 Summary Comparison of the Modified I-880-B Alternative with the Original I-880-B

Alternative

This section summarizes the comparison of the Draft EIR's I-880-B Alternative with the modified I-880-B Alternative. Nearly all of the environmental disciplines found no difference between the original I-880-B Alternative route and the revised route defined above and in Figure B-4. The exceptions are:

- The reroute avoids potential long-term impact to the Alameda County Flood Control channel, and therefore is preferred in hydrology.
- The reroute would impose short-term construction noise on a few more businesses, and therefore the original route is preferred in noise.

This reroute is considered necessary in response to new development southwest of the Cushing Parkway/I-880 interchange, in response to Caltrans requirements, and to avoid a flood control channel. The impact analysis shows the avoidance of a long-term hydrologic impact versus the imposition of a short-term noise impact during construction. Therefore, the Modified I-880-B Alternative is considered to be environmentally superior to the I-880-B Alternative evaluated in the Draft EIR.

C.6 MCCARTHY BOULEVARD ALTERNATIVE SEGMENT

This aboveground transmission line reroute would be located along McCarthy Boulevard in northwestern Milpitas. It would primarily be located east of Coyote Creek and adjacent to the existing mitigation area. Due to the location of the reroute, it would result in no difference in impact for the following disciplines: air quality; cultural resources; geology, minerals, and paleontology; hydrology and water quality; noise and vibration; public health, safety, and nuisance; and traffic and transportation. Following is an analysis of this reroute in the areas of biological resources, land use and recreation, socioeconomics/public services, and visual resources.

C.6.1 Biological Resources

This reroute would significantly reduce the potential for bird collision with the new transmission lines that are proposed to be located across the western end of the Santa Clara Valley Water District's flood control area that includes a large waterbird pond that was created as mitigation for impacts of flood control improvements. The high habitat value of this area was emphasized in several Draft EIR comment letters, including that of the U.S. Fish and Wildlife Service.

This reroute would also move the transmission line east (and out of the main bird flight path) of a great blue heron rookery that is located in the eastern portion of the SCVWD's mitigation area and northeast of the proposed route at approximately Milepost 5.5. As stated in the Draft EIR (page C.3-

30), under **Great Blue Heron Rookery (*Ardea herodias*)** (underlined sentence added):

The great blue heron has no state or federal designation as a special status species; however, breeding colonies, or rookeries, are monitored by CDFG. One small rookery was observed in February 2000 by Wetlands Research Associates biologists along Coyote Creek near milepost 5.1. Several herons were perched on nest structures in a large willow tree. Great egret (*Ardea alba*), a CDFG Species of Special Concern at rookeries, also nests at the Coyote Creek rookery.

This reroute would clearly reduce impacts on birds in this high value habitat area. However, even with the route passing east of these areas, as suggested in this alternative segment, the bird collision impacts would remain significant (**Class I**). Even with diverters, bird strikes would likely occur because of the proximity of the transmission lines to the high bird use areas. Therefore, bird diverters should be installed on this alternative segment (see Mitigation Measure B-9 in Section C.9.2), if it is selected.

C.6.2 Land Use and Recreation

This alternative segment would have three or four towers located in the City of Milpitas (at its western margin). The area is zoned as “MX-Mixed Use” and is part of the McCarthy Ranch industrial park. The development plan calls for uses such as offices, manufacturing, distribution/warehouses, corporate campuses, and bio-tech facilities. This northern end of the McCarthy Ranch property has easy access to the I-880 Freeway via the recently completed McCarthy Boulevard, which ends at Dixon Landing Road.

The reroute would have potentially significant recreation impacts due to its location just east of the Bay Trail alignment on the east levee of Coyote Creek. In addition, the towers would use lands that are zoned for commercial/industrial uses.

C.6.2.1 Recreation/Open Space Impacts

Immediately west of this reroute segment, including the levee east of Coyote Creek and the creek itself, the land is designated Parks/Recreation on the Milpitas General Plan land use map, and is zoned Park and Public Open Space (POS). Although the General Plan does not explicitly define the Parks/ Recreation category, the Zoning Ordinance identifies the following principal permitted uses in a POS District: public parks and recreational facilities, with the exception of public community centers and public indoor sports centers; public trails; and public community gardens. Public community centers and public indoor sports centers, day care centers, public utility facilities, and radio or television transmitters are allowed with a Conditional Use Permit. Although there is a 30-foot height limit in the POS district, public utility structures are explicitly exempted.

The following General Plan policies are relevant to the portions of the alignment that cross open space within the City of Milpitas:

Open Space/Conservation Policy 4.a-I-5: Provide an extensive visually stimulating system of "people paths" by developing park chains along Coyote Creek and the Hetch Hetchy right-of-way.

Open Space/Conservation Policy 4.a-I-6: Develop the Coyote Creek area in cooperation with the County Park and Recreation Commission in a linear park chain which would connect with the Coyote Park Chain in San Jose and provide a safe mechanism for undertaking flood-control measures. The trails along Coyote Creek should be part of the San Francisco Bay Trail, a regional network of trails used by hikers and bicyclists.

The alignment would be adjacent to a planned segment of the San Francisco Bay Trail on the east side of Coyote Creek. It is assumed (and confirmed in Open Space/Conservation Policy 4.a-I-6) that the City's "people path" in this area would be coincident with the Bay Trail. The DEIR identified a significant impact (**Class I**) on recreational trail users, including Bay Trail users, due to the visual intrusion of the overhead transmission lines and support towers and the resulting reduction in the quality of the trail experience. That impact would apply to this reroute, and would in fact be more visually intrusive than the proposed alignment, as discussed in greater detail in Section C.7.4 below. For that reason, it could be argued that the mitigated alignment would also be inconsistent with the "visually stimulating" system of trails described in Policy 4.a-I-5.

Open Space/Conservation Policy 4.g-I-8: Undertake a program in cooperation with PG&E to underground, relocate or screen utility lines and transmission towers within or easily visible from Scenic Routes.

Interstate 880 is designated a Scenic Corridor by the City of Milpitas, and the McCarthy Boulevard Alternative segment's transmission lines and towers would be easily visible from the freeway. Scenic Corridors are one of two types of Scenic Routes defined in the General Plan; they are located along designated streets that pass through an area of scenic value, and include the street rights-of-way and a corridor 200 feet from the center line of the streets along which they are located. While the transmission line would not be located in the corridor, it would be readily visible from it. Therefore, this alternative would be inconsistent with Open Space/Conservation Policy 4.g-I-8, which would be a significant, unavoidable impact (**Class I**). Placing this portion of the alignment underground would mitigate the impact; this is evaluated in Section C.7 (Southern Underground Alternative).

C.6.2.2 *Impacts on Commercial/Industrial Land Uses*

This alternative route would be located on agricultural and City of Milpitas land. The existing agricultural land is expected to be developed with a mixture of office, commercial, and light industrial uses. The transmission line would skirt the eastern perimeter of these future uses and be located adjacent to McCarthy Boulevard, which would provide access to the mixed use development.

This would create less than significant operational impacts similar to those identified for the proposed project on business park uses, including exposure to EMFs and the visual intrusion of the support towers and transmission lines. Issues related to exposure to EMFs are addressed in Section C.9 of the Draft EIR, and in Section C.8 of this Supplemental DEIR. The visual impacts of the alternative transmission line route would not affect land use or the occupants/tenants of the commercial land, so the presence of the transmission line would be adverse but not significant (**Class III**).

C.6.3 Socioeconomics and Public Services

The revised route would have three or four towers located west of McCarthy Boulevard and east of the Coyote Creek levee at the northern end of the McCarthy Ranch property. One or two towers would be located immediately east and adjacent to the Milpitas Sewage Pump Station. The City of Milpitas is concerned that this essential facility, which serves the whole city of Milpitas, have continuous operation and access, and that operations at the pump station would not be restricted in any way by the transmission towers. Such disruption would be a potentially significant impact (**Class II**). Therefore, the following mitigation measure (modified from Draft EIR Mitigation Measure S-1) is recommended to ensure that this route, if selected, is designed to minimize potential impacts on pump station operations.

S-1a PG&E Co. shall meet with the Milpitas Public Works and Planning Departments to review and approve the exact location and height of each tower in the City of Milpitas prior to final design, if the McCarthy Boulevard Alternative segment is selected. In order to minimize safety and other impacts to Sewer Lift Plant operations, the specific tower locations (in the general area identified in Figure B-4) shall be defined in coordination with City officials. Documentation of this coordination shall be submitted to the CPUC prior to the start of construction.

C.6.4 Visual Resources

This portion of the proposed route was determined to have adverse but not significant (**Class III**) impacts in the Draft EIR, because the line would be located west of Coyote Creek and would be screened, to some extent, by the riparian vegetation along the creek. Relocation of the alignment to the east side of Coyote Creek (as shown in Figure B-5) would result in greater visibility of the project to both users of the existing east levee recreation trail (future Bay Trail) and to motorists along I-880.

That portion of the route adjacent to McCarthy Boulevard would provide unobstructed foreground views of the transmission line and towers to motorists on I-880, though the lower portions of the towers would be backdropped by existing and future development west of McCarthy Boulevard.

The City is concerned that the visual impact of the transmission line adjacent to McCarthy Boulevard, within the I-880 Scenic Corridor, would detract from the appearance of the northern entrance to the City, and potentially affecting the City's plans to install an entrance monument adjacent to the I-880 Freeway in this area. This alternative would cross the existing levee recreation trail in two locations.

The transmission line structures adjacent to McCarthy Boulevard would be partially screened from view on the trail by existing and future development along the west side of McCarthy Boulevard. However, views of the conductor spans from the trail would be unobstructed. While the resulting visual impacts would be substantially greater than the proposed route on the west side of Coyote Creek, they would still be considered adverse but not significant (**Class III**).

C.6.5 Conclusion

The McCarthy Boulevard Alternative route was designed in response to concerns that migratory birds using the SCVWD's mitigation pond in the Coyote Creek floodplain would have to fly directly through the proposed route's lines in their common flight path. However, this route is much more visible than the equivalent segment of the proposed route, and the visible segments are in areas that are sensitive to the City of Milpitas and to recreational trail users along the Bay Trail. While it is difficult to compare the magnitude of these two impacts because they affect different receptors (i.e., birds vs. people), the proximity of this area to the San Francisco Bay National Wildlife Refuge gives an indication of the high value of bird habitat in this area. Therefore, the reroute into the City of Milpitas is considered to be environmentally superior to the equivalent portion of the proposed route from Mileposts 4.9 to 5.6.

C.7 SOUTHERN UNDERGROUND ALTERNATIVE

Underground transmission line construction results in similar impacts where lines would be installed in or adjacent to roadways. Therefore, the discussion of the impacts of the Northern Underground Alternative (Section C.3) would apply to this Southern Underground Alternative in the following issue areas: air quality, cultural resources, noise, public health, public services, and transportation. Please refer to

Section C.3 for discussion of these issues.

C.7.1 Biological Resources

An underground route along McCarthy Boulevard would eliminate the significant (Class I) bird collision risk associated with the proposed route between Mileposts 4.9 and 7.0 (through the WPCP).

However, if an overhead crossing of Coyote Creek were used at the southern end of this route, mature riparian vegetation would have to be cleared in approximately a 100 foot wide swath across the creek. The loss of this mature vegetation would be considered a significant impact, mitigable by implementation of the bored crossing. If the bored crossing were implemented, this alternative would be preferred over the proposed due to elimination of significant collision impacts for birds using the WPCP ponds.

C.7.2 Geology and Soils

Geologic impacts for the Southern Underground Alternative would include soft or loose soils, high water table, corrosive soils, surface fault rupture, liquefaction potential, and potential differential settlements due to strong ground shaking. This alternative route closely follows the historic margin of bayside marshes, overlying soft bay mud deposits. These deposits have little bearing strength and contain abundant polysulfides which may corrode uncoated steel or concrete. Application of Mitigation Measure G-1 (including the use of piles to support the weight of the buried conduit) may be necessary where these deposits occur. A bored crossing beneath Coyote Creek may not be possible: the presence of soft bay mud requires closely spaced support piles, and because the length of the bore would exceed the design span between piles, the piles would have to be pre-placed at exactly the proper location within the stream channel. Even with application of Mitigation Measure G-1, the unconsolidated bay mud sediments would place the buried conduits at some risk of damage from differential settlement, a significant and unavoidable impact (**Class I**).

The potential for liquefaction along this alternative is similar to that of the overhead segment it replaces. However, the location of this alternative significantly increases the risk of damage to the conduit by lateral spreading because the conduit would be buried not far outside of the levees bounding Coyote Creek. During the 1868 Hayward and 1906 San Francisco earthquakes, the area along Coyote Creek experienced extensive lateral spreading, with the ground on both sides of the creek moving toward the creek with as much as 5 feet of lateral displacement over continuous lengths of up to 300 feet. These lateral spread failures were observed to distances of 2,000 feet west of Coyote Creek and up to one half mile north of Highway 237. The effects such displacements would have on the transmission line conduit would be to shift it laterally along with the spreading soil blocks, severing the conduit where failed and competent stretches of soils meet. This shifting would also remove the conduit bank from any piles or piers supporting it in the soft soils, causing

differential settlement and further potential for rupture. The potential for differential settlements would also be substantial greater than that for the segment of the proposed project this segment would replace due to increased ground contact. Mitigation Measures G-1, G-2, and G-3 would apply to the Southern Underground alternative, but the potential for serious damage to the transmission cables would remain a significant and unavoidable (**Class I**) impact.

The proposed route or the proposed route with the McCarthy Boulevard Alternative segment are preferred to this underground alternative in the geology and soils issue area.

C.7.3 Hydrology

The Southern Underground Alternative would have two crossings of Coyote Creek: one overhead (at Dixon Landing Road and McCarthy Boulevard) and one crossing (due east of the proposed substation site) that could be either bored or overhead. The overhead crossing would not affect surface waters substantially differently from the proposed project. A bored crossing would have the same potential for contamination of groundwater that is described for the Northern Underground Alternative (Section C.3.6). The impact is potentially significant, but mitigable to less than significant levels (**Class II**) with implementation of Mitigation Measures H-2, H-3, H-4, H-6, and H-9.

This route passes through areas with the potential for encountering contaminated soils and/or groundwater due to past industrial activities in the Fremont Airport property and agricultural activities along the McCarthy Boulevard portion of the route. In addition, as with the Underground Through Business Park Alternative, with the presence of shallow groundwater, there is the potential for construction equipment to cause groundwater contamination during construction. These impacts are potentially significant (**Class II**), but mitigable with implementation of Mitigation Measure H-9a and PG&E Co.'s Applicant Proposed Measure 7.18a (which requires testing in areas of known or suspected contamination).

H-9a In order to evaluate the depth to groundwater in underground segments, groundwater levels along all underground segments shall be tested by drilling pilot borings performed at 1,000-foot intervals along this route during high water tidal conditions. The location of places where groundwater depth is less than 6 ft shall be identified prior to trenching activities and avoided, where possible, for the underground route. Where avoidance is not possible, PG&E Co. shall consider construction in a shallower trench, depending upon structural requirements of the underground method and other practical concerns. PG&E Co. shall document results of test drilling in a letter report to the CPUC and shall propose specific means to minimize the impact on groundwater if shallow groundwater is found. These measures must be approved by the CPUC prior to the start of construction of the underground segment.

For all underground transmission line segments, PG&E Co. shall research government

databases documenting contaminated sites and identify potential sites within 1000 feet of the trench locations. In these areas, and for other areas where contamination is known or suspected, PG&E Co. shall implement Applicant Proposed Measure 7.18a. Prior to the start of construction, PG&E Co. shall provide a report documenting records searches for contaminated sites along underground segments, and shall define its proposed procedures for testing of such sites and for protection of construction workers and the public. These procedures will be reviewed by the CPUC and the Regional Water Quality Control Board, and PG&E Co. may not start construction of an underground segment prior to receiving approval of its proposed testing and protection program.

C.7.4 Land Use and Public Recreation

The current land use along the west side of McCarthy Boulevard is agricultural, with the exception of the Milpitas sewer lift station (a public service use). However, the land between McCarthy Boulevard and the eastern Coyote Creek levee will be developed for commercial and industrial properties. There are two residential complexes within the agricultural property that appear to house agricultural workers. While development will probably displace these residents within the next few years, the residences are currently occupied and thus are considered to be sensitive land uses. These residents would be affected by construction disturbances including limited access during construction in or adjacent to the street, construction noise and dust. This disturbance is an adverse impact (**Class III**) that could be reduced by implementation of Mitigation Measures L-1 and L-2, which would ensure provision of appropriate construction notice and a construction liaison.

Construction of this underground route along the west side of McCarthy Boulevard would also present temporary access restrictions, and cause noise and dust disturbance to hikers on the Bay Trail. A bored crossing of Coyote Creek would require extended construction activity immediately adjacent to the trail (on the east levee). An overhead crossing of the creek would require the presence of two transition structures adjacent to the trail, and overhead lines that would require removal of existing riparian vegetation. The overhead crossing would also require clearing of an approximately 100-foot wide swath across the creek to comply with safety requirements, resulting in an adverse visual impact to recreational land users.

The proposed route is preferred to the Southern Underground Alternative because it would minimize land use and recreational impacts.

C.7.5 Socioeconomics and Public Services

Construction along McCarthy Boulevard could damage existing underground utilities. However, the width of this street (which was recently constructed, in 1999-2000) offers adequate space for the underground transmission facilities to avoid existing utilities, so no impact on existing public services

is expected.

C.7.6 Transportation and Traffic

As described in Section C.3, construction in and adjacent to public roadways has the potential to disrupt traffic flow and damage the roadbed itself. McCarthy Boulevard is a new roadway that was opened to public use during the summer of 2000, so no traffic volume data are available. However, the Southern Underground Alternative would have greater impacts than the equivalent segment of the proposed route, which would not affect roadways at all.

C.7.7 Visual Resources

The temporary construction impacts associated with trenching for underground lines would be adverse, but not significant. These impacts would be offset by the elimination of the overhead lines and towers. However, south of Dixon Landing Road, the proposed route would not be located in areas with high visual sensitivity (through the WPCP). As illustrated in Draft EIR Figure C.12-4, the proposed route along the west side of Coyote Creek would be visible from the Bay Trail on the east levee of the creek. However, the visual impact of the proposed project in this area was determined to be adverse and not significant (**Class III**) due to the partial screening provided by trees along the creek.

While the Southern Underground Alternative would eliminate the adverse (but not significant) impact associated with the proposed route's visibility from the Bay Trail, it would also create visual impacts as a result of the pair of transition structures that would be required at three locations. Two pairs of these large structures would be required adjacent to Dixon Landing Road (one pair north of the creek and one pair south of the creek) to allow the overhead portion of the line to span the creek. At this location, two portions of the Bay Trail also cross Dixon Landing Road (as illustrated in Figure C.7-3 of the Draft EIR). The proposed route would have a single tower in this area (at Milepost 4.9) and it would be much less massive than the transition structures. However, the existing visual context of this area includes the nearby landfill and recycling center, the I-880 Freeway, and therefore is not of high visual value. As a result, the impact of the transition structures would be adverse but not significant (Class III).

An additional pair of underground/overhead transition structures would be required adjacent to Coyote Creek at the southern crossing. These structures would be located east of the creek if the crossing occurred aboveground, and west of the creek with an underground (bored) crossing. If located on the east side of the creek, these structures and the lines leading across the creek would be adjacent to the Bay Trail, creating another adverse but not significant visual impact (**Class III**). If a bored crossing resulted in the transition structures being located on the west side of the creek, the visual impact would be adverse but not significant (**Class III**), because the riparian vegetation would screen the structures from view.

from the trail. However, this underground alternative is preferred over the proposed route because the majority of the towers and conductors would be underground, and not visible.

C.7.8 CONCLUSION

The most serious impacts affecting the Southern Underground Alternative result from geologic hazards: liquefaction and differential settling in the bay mud sediments. These significant and unavoidable impacts have the potential to threaten the reliability of the underground lines. In addition, the Southern Underground Alternative would have impacts in transportation, land use, and hydrology would be greater than for the proposed route. The underground route is preferred for its reduced impacts to biological resources, but only if the bored crossing were implemented and there are serious feasibility concerns related to that type of crossing below Coyote Creek. Overall, the proposed route segment (with the McCarthy Boulevard Alternative segment) is strongly preferred over the Southern Underground Alternative.

C.8 EMF MITIGATION ANALYSIS

C.8.1 PG&E Co.'s Proposed Interim EMF Mitigation

As described in Draft EIR Section C.9.1.2.6, the CPUC requires regulated utilities to implement “no-cost and low-cost mitigation” to reduce electric and magnetic fields (EMF). On July 3, 2000, Administrative Law Judge (ALJ) Biren ordered PG&E Co. to submit its EMF field management plan for the three routes that pass through or adjacent to the Bayside Business/Bayside Technology Park¹. PG&E Co. submitted two responses to the ALJ’s order: a letter dated July 13, 2000 (which attached EMF mitigation discussion for the underground portion of PG&E Co.’s proposed Tri-Valley 2002 Capacity Increase Project) and a filing dated July 28, 2000 that addressed the two overhead routes through the business parks (the proposed route and the I-880-B Alternative). This second filing includes PG&E Co.’s interim strategy for complying with the CPUC’s no-cost/low-cost mitigation requirements; however, PG&E Co. states that this document cannot be considered as final or binding since final project design has not been completed.

Table C-2 presents PG&E Co.’s proposed mitigation strategy for EMF along these three transmission line routes (as defined in the July 13 and July 28, 2000 documents). PG&E Co.’s mitigation strategy is based on prioritizing land uses and spending the CPUC’s guideline of 4% of project cost² (it should

1 This business park area along Fremont Boulevard south of Cushing Parkway includes the Bayside Business Park (the western portion of the area, through which the proposed 230 kV route and the Underground Alternative) and the Bayside Technology Park (between the I-880 Freeway and the Bayside Business Park, which is primarily where the I-880-B Alternative would be located).

2 The CPUC’s EMF Decision states, “... it is logical to define low cost to be in the range of 4 percent

be noted that PG&E Co. uses only the transmission cost portion of the Northeast San Jose Transmission Reinforcement Project, and not the “total” project cost, which would include the Newark substation modification and the construction of the proposed 230 kV substation). These mitigation dollars are applied to transmission lines based on the adjacent land uses, according to the following priority list:

1. School or Daycare
2. Residential
3. Commercial/Industrial
4. Recreational
5. Agricultural/Rural
6. Undeveloped Land (zoned for residential)
7. Undeveloped Land (zoned for commercial/industrial)
8. Unpopulated, Forested, Government Owned Land

Table C-2 PG&E Co.’s Interim Proposed EMF Mitigation

Route	Location	EMF Mitigation	% Field Reduction	Cost ^a
Proposed Route: No Cost Measures	Entire route	Cross phase configuration of conductors	50%	0
Proposed Route: Low Cost Measures	115 kV line adj. to residential properties adjacent to Montague Substation (San Jose)	+ 20 feet for 4 easternmost towers	additional 58%	\$80,000
	230 kV line outside of business park (no residential or business receptors)	No mitigation is proposed in these areas	0	0
	230 kV and 115 kV lines where they pass through or adjacent to businesses	+ 20 feet for each tower	additional 44%	\$740,000
	Total Cost		\$820,000 (3.9% of transmission cost) ^b	
I-880-B Alternative: No Cost Measures	Entire route	Cross phase configuration of conductors	50%	0
I-880-B Alternative	115 kV line adj. to residential (San Jose)	+20 feet for 4 easternmost towers	additional 58%	\$80,000
	North and south of business park	No mitigation is proposed in these areas	0	0
	Along 115 kV route	+ 20 feet for each tower	44%	\$440,000
	Within business park	+ 30 feet for each tower	58%	\$1,050,000
	Total Cost		\$1,570,000 (3.3% of transmission cost) ^c	
Underground Alternative: No Cost Measures	Along all underground segments	Arrange conductors in triangular configuration	50%	0
Underground Alternative: Low Cost Measures	Along all underground segments	No low-cost measures proposed because cost of 2-foot deeper trench cost approximately 4.9%	0	0

of the total cost of a budgeted project. We direct utilities to use 4 percent as a benchmark in developing their EMF mitigation guidelines. We will not establish 4 percent as an absolute cap at this time because we do not want to arbitrarily eliminate a potential measure that might be available but costs more than the 4 percent figure.”

		of transmission costs, which PG&E Co. states is not acceptable ³		
	Total Cost	0		

Source: PG&E Co.

- ^a The cost as presented by PG&E Co. is the transmission portion of the project only and not for the entire project with substation
- ^b 4% of transmission line cost for proposed route = \$20,800,000 x 0.04 = \$832,000
- ^c 4% of transmission line cost for I-880-B Alternative = \$47,500,000 x 0.04 = \$1,900,000

³ The CPUC will determine the appropriate cost for EMF mitigation as part of the Decision on the project.

There are no schools near the proposed project or alternatives. Therefore, in this project, PG&E Co. first proposed mitigation for the residential property adjacent to the Montague Substation (at the east end of the 115 kV portion of the project). They determined that raising the height of the easternmost four towers would reduce impacts to those residences. PG&E Co. then looked to reduce impacts to commercial and industrial land uses, which occur in the Bayside Business and Bayside Technology Parks (along the 230 kV route portion in Fremont) and along Trimble Road and Montague Expressway (on the 115 kV route segment). The recommended tower height increases in commercial and industrial areas were based on the maximum height of other nearby towers. For example, the I-880-B Alternative would require two 195-foot towers at the point that they cross the existing 115 kV lines at the south end of the business park area, so the recommended 30-foot increase would result in towers of heights similar to those.

C.8.2 Alternate Mitigation Approach

After preparing the EMF Field Management Plan defined in Table B-2, PG&E Co. also had an EMF specialist evaluate the specific transmission line tower and conductor locations and their proximity to buildings through the business park area. The goal of this analysis was to determine the height of towers required to reduce EMF emissions to less than 10 milliGauss at the edge of the nearest building. This figure was used because that is believed to represent the level below which computer monitor interference would not occur. This study resulted in recommendations for tower height adjustment specific to areas where there is some potential for impact (i.e., where there is no building in proximity to the line, no height adjustment would be required, but where buildings are closer, a greater height increase is recommended). Because the CPUC's Decision will address EMF mitigation, this information is included in this Supplemental Draft EIR in order to disclose potential environmental impacts of this mitigation approach. Table C-3 summarizes PG&E Co.'s alternate proposal for tower height adjustments for the 11 towers in the business parks in Fremont.

Table C-3 PG&E Co.'s Alternate EMF Mitigation for the Proposed Project

Tower No.	Proposed Pole Height (feet) ^a	Mitigated Height Adjustment (feet)	Resulting Pole Height with Mitigation (feet)
1	154	0	154
2	140	+ 15	155
3	130	+ 30	160
4	130	+ 45	175
5	129	+ 35	164
6	109	+ 55	164
7	99	+ 55	154
8	118	+ 55	173
9	134	+ 20	154
10	154	0	154
11	140	0	140

Source: PG&E Co.

^a Proposed tower height (without mitigation) is determined by the distance between towers and the angles of each tower

Table C-4 presents PG&E Co.'s alternate EMF mitigation strategy for the I-880-B Alternative (including the I-880-A portion).

Table C-4 PG&E Co.'s Alternate EMF Mitigation for the I-880-B Alternative

Tower No.	Proposed Pole Height (feet) ^a	Mitigated Height Adjustment (feet)	Resulting Pole Height with Mitigation (feet)
2	125	+ 30	155
3	162	+ 20	182
4	157	0	157
5	146	0	146
6	134	0	134
7	127	+ 40	167
8	113	+ 55	168
9	113	+ 55	168
10	135	+ 55	190
11	139	0	139
12	122	0	122
13	121	0	121
14	121	+ 30	151
15	120	+ 30	150
16	117	+ 10	127
17	122	0	122
18	116	+ 15	131
19	115	+ 20	135
20	110	+ 10	116
21	112	0	110
22	112	+ 15	127
23	108	+ 35	143
24	112	0	112
25	111	+ 30	141
26	110	+ 30	140
27	195 ^a	0 (fixed height)	195
28	195 ^a	0 (fixed height)	195
29	129	0	129

Source: PG&E Co.

^a These towers would be required to be exceptionally tall at the point where they cross the existing 115 kV lines through the business parks due to safety requirements for conductor separation.

The tower height adjustments shown in Tables C-3 and C-4 are based on identification of potential EMF receptors in the vicinity of (and between) each pair of towers. Where the height adjustment is shown as "0", a judgment was made that no receptors would be affected. The larger height adjustments (i.e., + 35 to + 55 feet) were recommended for areas where receptors are closer to the towers or conductors. This approach illustrates the large range of tower heights that could be constructed to maximize impact reduction, as opposed to PG&E Co.'s approach in the Field Management Plan where towers would all be raised equally.

C.8.3 ENVIRONMENTAL IMPACTS OF EMF MITIGATION FOR OVERHEAD TRANSMISSION LINES

The CPUC's required "no-cost" and "low-cost" EMF mitigation does not incorporate a requirement for environmental review of the impacts of the mitigation because the EMF Field Management Plans are sometimes not prepared until the final project design stage (after project approval). However, in this project, because the ALJ required that EMF information be submitted earlier, the impacts of this mitigation can be assessed as part of the CEQA process. For the overhead transmission line segments where the tower height could be raised by up to 30 feet, this analysis considers two impacts: visual and biological (bird strikes). For the underground segment, the analysis considers potential hydrologic impacts of increased burial depth.

PG&E Co. has its own "Transmission Line EMF Design Guidelines" (May 20, 1994) that describe the various PG&E Co. transmission line design categories, practices and procedures for implementing programs to manage magnetic field strength levels. This document (in Section II, Purpose of Design Guidelines) states that environmental and aesthetics concerns must be considered, along with safety, reliability, insulation, and electrical clearance requirements in determination of EMF mitigation.

The most significant environmental concern in the case of the Northeast San Jose Transmission Reinforcement Project is the visual impacts of increased pole height. There are also reliability and maintenance concerns that could result from potential hydrologic impacts related to shallow groundwater along the underground alternative segment.

Because birds fly at different heights depending on their species, time of day, etc., the changes in the heights of towers would not change the bird collision risk. Therefore, biological resources impacts are not addressed in this section.

C.8.3.1 Visual Impacts of EMF Mitigation

EMF Mitigation for the Proposed Project. In its Interim EMF Field Management Plan, PG&E Co. proposes to raise all towers within commercial and industrial areas (within the Bayside Business Park and along Trimble Road and Montague Expressway) by 20 feet to reduce EMF exposure. The tower heights in these areas currently range from 99 to 154 feet (with an average of 131 feet), so the increased tower height would be an additional 13% to 20% (with an average of 15% taller). This increase is not considered to add substantially to the visual impact. As described in Draft EIR Section C.12.2.6.3, the proposed route through the Bayside Business Park is considered to have adverse but not significant (**Class III**) visual impacts.

PG&E Co.'s alternate EMF mitigation strategy (illustrated in Tables C-3 and C-4) is one in which certain towers are not raised at all (if there are no receptors in the area) while other towers are raised by a greater amount due to the proximity of the line to buildings. In this scenario, the height of some

towers would increase by as much as 50%, but other towers would remain unchanged. At a minimum, the additional height of selected towers would exacerbate the adverse (**Class III**) impact that already exists along the proposed route at the western edge of the Bayside Business Park and along the I-880-B Alternative. There is also the potential that the increased height of the tallest poles could result in significant visual impacts (**Class I**).

Implementation of specific EMF mitigation will be determined by the CPUC in its Decision on the project. Because either EMF mitigation solution considered by PG&E Co. in Tables C-2 and C-3 above could result in an increased level of visual impacts, it is recommended that Mitigation Measure V-4 be implemented to allow development of an interdisciplinary approach to EMF mitigation. However, it is noted that if the CPUC decides that the alternative EMF mitigation strategy should be implemented, this mitigation measure may not result in a reduction of the visual impact to less than significant levels. It is possible that the impact would remain significant (**Class I**).

V-4 PG&E Co. shall implement EMF mitigation for overhead 115 kV and 230 kV transmission lines based on the determination of the CPUC's Administrative Law Judge for this project, who shall be provided with a detailed report completed within 90 days after CPUC approval of a particular transmission line route. This report shall include the recommendations of a group convened to consider the range of impacts and costs that could result from EMF mitigation for the approved routes. The recommendation shall be made on a tower-by-tower basis, and shall incorporate the results of site visits to each tower location, and shall include the mitigation cost of each component. The group shall include a representative of PG&E Co.'s engineering and land staff, PG&E Co.'s EMF expert, a representative from the City through which the overhead route passes, and the following members representing the CPUC (as deemed appropriate by the CPUC Energy Division): a visual impact expert, an EMF impact/mitigation expert, and representative(s) of the Energy Division. If the group does not reach a consensus, all views shall be presented for the ALJ's consideration.

EMF Mitigation for the I-880-B Alternative. PG&E Co.'s EMF Field Management Plan for the I-880-B Alternative would require that the 230 kV towers through the business park (Bayside Technology Park) be raised 30 feet each. This determination was made based on PG&E Co.'s determination of the available funds (at up to 4% of transmission line costs) and the maximum height of towers along this alternative without mitigation (195 feet). This adjustment would result in the towers being 20% to 30% taller than the original height (original height is shown in the second column of Table B-4). As stated in Draft EIR Section C.12.3.3.2, the visual impacts of the I-880-B Alternative are considered to be adverse but not significant (Class III). The additional tower height (which would result in towers ranging from 138 to 195 feet tall) would increase the visual impact, but it is likely that the visual impact would remain adverse but not significant. The modifications to the I-880-B Alternative described in Section C.6 would reduce the visual impact of this route from the I-880 Freeway, and the additional height would generally not be noticeable from within the business

park itself.

PG&E Co.'s alternate EMF mitigation approach (not currently proposed) shows height adjustments of from zero to 55 feet, resulting in ultimate tower heights ranging from 110 to 195 feet. The addition of 55 feet to three towers (resulting in heights close to 170 feet, a nearly 50% increase) could be potentially substantial enough to increase the visual impact to a significant (Class I) level. This determination would have to be made based on a site-specific analysis of these tower locations, their visibility from various viewing spots, and the sensitivity of the views in question.

Because PG&E Co. has not completed final project design and the EMF mitigation has not been determined for either route, a tower-by-tower visual impact analysis cannot be completed at this time. Implementation of Mitigation Measure V-4 is also recommended for the I-880-B Alternative, if selected, to determine appropriate EMF mitigation and incorporate analysis of visual impacts when tower locations are finalized.

C.8.4 IMPACTS OF EMF MITIGATION FOR THE UNDERGROUND ALTERNATIVE

PG&E Co.'s interim EMF Field Management Plan submitted for this project does not address mitigation for underground transmission lines. Rather, it refers to an analysis completed for another proposed PG&E Co. project in the Tri-Valley (Pleasanton) area, where an underground 230 kV transmission line is proposed for installation in a residential neighborhood. In the Tri-Valley analysis, PG&E Co. determined that the potential low-cost mitigation of two feet of additional burial depth would cost about 4.9% of transmission cost, so they stated that they would not implement this mitigation. However, given the requirements of CPUC Decision 93-11-013 (the Decision that defines the CPUC's EMF mitigation policy), it is likely that the CPUC would order some "low-cost" mitigation for underground transmission lines, even if the cost is slightly over 4 percent.

The impacts of two feet of additional conduit burial are:

- Longer construction time
- Greater construction impacts (noise, dust, air emissions, traffic disruption)
- Greater potential for groundwater contamination and construction delays associated with requirement to remove groundwater from the trench.

These impacts caused by deeper conduit burial are less than significant with implementation of construction mitigation measures recommended in the Draft EIR. However, the increased extent of construction impacts, especially given the two trenches required for this project, should be disclosed to decisionmakers and the public.

C.9 BIOLOGICAL RESOURCES ISSUES

Comments on the Draft EIR raised two concerns related to biological resources that are addressed here. Section C.9.1 evaluates the potential for raptor perching (and subsequent predation of the salt marsh harvest mouse, a Federal and State listed endangered species) and the salt marsh wandering shrew (California Species of Special Concern and Federal non-official Species of Concern). Section C.9.2 presents expanded discussion of the potential for bird collision with the new transmission lines.

C.9.1 Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew (Draft EIR Impacts 12 and 13)

The comment letter from the U.S. Fish and Wildlife Service (USFWS) noted concerns regarding increased predation in the Fremont Airport property, in which a preserve for the endangered salt marsh harvest mouse will be created as mitigation for the development of the eastern portion of the parcel. This area is also habitat for the salt marsh wandering shrew, a species of special concern. The preserve will be located west of the proposed Fremont Boulevard, and PG&E Co.'s proposed location for the 230 kV line is also just west of Fremont Boulevard. Based on the USFWS comments, an additional mitigation measure is recommended to reduce potential predation impacts to less than significant levels (**Class II**).

B-8 If the Underground Through Business Park Alternative is selected, the underground segment should be extended through the Fremont Airport parcel (an additional 0.8 miles) to Milepost 4.9, adjacent to (or under) Fremont Boulevard. At PG&E Co.'s option, this segment could be initially constructed as an aboveground segment (four towers would be located between Mileposts 4.1 and 4.9) due to uncertainties associated with the exact location of Fremont Boulevard and the potential for road construction to damage the underground cables. If constructed as an overhead segment, at the time that Fremont Boulevard is graded, the transition structures from near Milepost 4.1 shall be relocated to near Milepost 4.9 and the segment between those mileposts shall be installed underground.

If any overhead transmission line route through the business park is selected (and for any time period that there are towers present in the Fremont Airport parcel, such as prior to undergrounding as described above), the tower arms from Milepost 4.1 to 5.1 shall have commercially available materials installed to prevent raptor perching. PG&E Co. shall maintain these materials in good condition through the life of the project.

C.9.2 Bird Collision Impact (Draft EIR Impact 9)

The Draft EIR discusses the bird collision impact in Section C.3.2.4.2, beginning on page C.3-62. The following discussion replaces the Draft EIR analysis of bird collisions.

Bird collisions with man-made structures have been reported in the scientific literature for over a

century (see Avery et al., 1980 and Herbert and Reese, 1995 for extensive annotated bibliographies).

A number of bird collision studies of transmission lines have been conducted. Many of these are of limited scope, but several recent studies have been both well designed and complete (Hartman et al., 1992; Faanes, 1987; Pearson, 1993). These studies indicate that the primary factor determining the number of birds colliding with a transmission line is the number of birds flying through the area. For example, a Mare Island study (Hartman et al., 1992) found that both bird flights and collision mortality were much greater on a section of a 115 kV pole line that paralleled a tidally influenced salt pond than on a section that passed through a hayfield. High use of the salt pond by migratory waterfowl and shorebirds resulted in more collisions than along the line through the hayfield, which generally had low bird use. Other factors that influence the rate of bird collision are species, age, flocking behavior, weather conditions, land use, topography, and line placement and configuration (APLIC, 1994). In the south San Francisco Bay, the highest mortality is expected where lines cross tidal mudflats that are used extensively by feeding shorebirds.

Table B-5 below is modified from PG&E Co.'s Proponent's Environmental Assessment (PEA; updated only to reflect current route and current alternative names). Note that the PEA also considered the potential for bird strikes to be high where it does not parallel an existing line (which is the case for over 5 miles of the 7.3 mile long proposed route). The high potential area also included the route segment parallel to Coyote Creek (through the Water Pollution Control Plant, WPCP).

Table B-5 Potential for Bird Strikes Along Each Route Alternative

Route	Significant Features	Potential for Bird Strikes
Proposed Route	Salt ponds, Fremont Flood Control Channel, crosses Coyote Creek and roughly parallels it past Coyote Creek Riparian Center, mitigation pond and wetlands, sludge drying beds	<i>High</i> , especially on portion that does not parallel existing line, and portion parallel to Coyote Creek
Westerly Route Alternative; Westerly Upgrade Alternative	Salt ponds, Coyote Creek, salt marsh, WPCP	<i>Moderate</i> , parallels existing lines through bird use areas
I- 880-A and -B Alternatives	East/south of Pacific Commons Preserve	<i>Low to moderate</i>
Northern Receiving Station Alternative	Salt ponds, Coyote Creek, salt marsh, Guadalupe River, wetlands	<i>Low to moderate</i> , parallels existing lines through bird use areas, new crossing of Guadalupe River
Los Esteros to Montague 115 kV Replacement Line	None	<i>Low</i>
Zanker Road Substation Alternative	Highway 237 crossing and Coyote Creek wetlands adjacent to SCVTA mitigation ponds	<i>Moderate</i>
Barber Lane 115 kV Alternative	Santa Clara Transit Agency mitigation pond, Coyote Creek	<i>Low to moderate</i> , depending on local bird movements

Source: PG&E Co.(PEA, 1998)

It is impossible to predict the magnitude of bird mortality from the transmission line without extensive information on bird species and movements in the project vicinity. These data are not available for the proposed or alternative transmission line routes. However, it is possible to make some qualitative predictions based on previous studies in other areas. Based on these studies, it is generally expected that collision mortality will be greatest where the movements of susceptible species are the greatest.

The first two miles of the proposed transmission line route parallel an existing PG&E Co. transmission line corridor. In general, several transmission lines within a single corridor are expected to be more visible to birds than single lines (APLIC, 1994). Additional bird mortality is expected to be lower when a line is constructed within an existing corridor than when it crosses new areas. The visibility of the new line will also be enhanced by its bundled conductors, that is, two large conductors tied together. However, no studies have been done on the relative mortality rates for birds of bundled versus single conductors. Several studies have documented that most bird strikes are caused by the static wire, a smaller diameter wire that runs from tower to tower above the conductors. Saverno et al. (1996) found that 82 percent of 35 observed collisions were with the static wire rather than the conductors. Additionally, most collisions occur at night. In the Mare Island study, birds flying at night reacted less to the powerlines than birds crossing the lines in the day (Hartman et al. 1992). During the same study, nine collisions were witnessed during the night survey and none were observed during the day survey.

Along the proposed 230 kV transmission line route, significant features for waterfowl and shorebirds are:

- The salt ponds between Mileposts 1.7 and 2.7
- The Coyote Creek Flood Control Basin east of the route between Milepost 4.9 and 6.7
- The Bayside Business Park mitigation pond between Milepost 2.7 and 4.1
- Newby Island Landfill west of the route between Milepost 4.1 and 4.9
- The Santa Clara Valley Water District's mitigation area between Mileposts 4.9 and 5.6
- The San Jose/Santa Clara Water Pollution Control Plant (WPCP) adjacent to (and west/north of) the route between Milepost 5.1 and 7.0.

The most visible bird movements are the gulls traveling to the Newby Island Landfill in the morning to feed, and returning to roosting sites in the evening. Gulls are generally thought to have a low vulnerability to collisions with power lines (Leitner, 1981; Hartman, et al. 1992), but nevertheless have been found under the existing lines at Coyote Creek near the Newby Island Landfill (Ryan, 1997). Shorebirds would most likely collide with the proposed line where it would cross the tidal portions of Coyote Creek, and in or near the salt ponds. Shorebirds regularly move in and out of these areas as the tides alternately expose and cover the mud banks. Hartman et al. (1992) found that black-bellied plover, western sandpiper, and dunlin were the most vulnerable of 15 species of shorebirds collected during bird strike studies at Mare Island in Solano County. The threatened western snowy plover is known to breed in Salt Pond A22 (between Milepost 1.7 and 2.7), and could be affected by additional transmission lines in this area.

Three studies related to bird use of the project area and the potential for bird strikes are summarized below.

- **Water Pollution Control Plant (WPCP) Bird Study.** Jaramillo, et al. (1997) surveyed bird use of the

sludge ponds associated with the WPCP from February 1997 to October 1997. These sludge ponds are adjacent to (and west of) the proposed 230 kV transmission line route. Each of forty-eight ponds was surveyed 32 times during the study period. A total of 118,768 birds were counted, with 91 species represented. The greatest number of birds was observed in winter (February - March). However, the greatest diversity occurred in the fall (August - October). Waterfowl and shorebirds (sandpiper sp.) were the most abundant species. Due to large numbers of birds using these ponds, some transmission line mortality could be expected in that area, however, based on available data, it is not possible to project the number of birds that would be affected by the construction of transmission lines. It is noted that because the transmission line would be located east of the WPCP ponds and the open Bay is west of the WPCP, it may be that the major flight paths would not cross the proposed route. Implementation of Mitigation Measure B-9 (below) is recommended to reduce impacts from bird strikes along this portion of the proposed transmission line route.

- **South San Francisco Bay Study.** Leitner (1981) conducted a study for PG&E Co. of bird habitat utilization, bird flight patterns, and bird/transmission line interactions in South San Francisco Bay. The study area is north of the area of the proposed project, in the area between the Newark Substation and the Dumbarton Bridge along the eastern bay margin. A 1.0 km length of transmission line was monitored for bird collisions from January through April 1980. Ten searches were conducted for bird carcasses and/or injured birds during this time period. Four bird carcasses were found in which the cause of death was deemed to be the result of a transmission line collision. Numerous other carcasses were present, but due to scavenging of carcasses, their cause of death could not be determined. Although Leitner's 1981 study indicates low mortality along the section of line studied, bias associated with estimating collision mortality at this site is also cited. In addition to the difficulty associated with determining a cause of death for many of the remains, some remains may have been completely removed from the survey area by scavengers. Other birds that struck the line may have fallen outside the search area. Also, observations were made from a walkway crossing marsh vegetation; carcasses may have fallen through the plant canopy and escaped observation. Another factor that may have resulted in low collision numbers was the unusually clear weather that reportedly occurred within the survey period. This would have reduced the likelihood of collisions. All of the carcasses found in this survey were located after episodes of rain or fog. Due to the limited scope of this study as well as bias associated with study design (length of study segment and location of segment) and natural phenomena (weather, predation), the results were not used in the present study as a basis for determining bird collision patterns in the South San Francisco Bay Area.
- **Mare Island Study.** A three-year study in the area of Mare Island was prepared under the direction of PG&E Co. biologists in 1991 (Hartman et al. 1992). In this study, two separate sections of a 115 kV powerline were studied. The first section was 1.6 km long and parallel to the shore of a salt pond in the Vallejo area (about 50 miles north of the project area). In this section, the study found an estimated range of from 627 to 1,308 bird strikes in one year. Along the second section, a 4.8 km hayfield transect (also following a 115 kV powerline), the estimate of bird strikes ranged from 176 to 335 in one year. If the lower bird strike rate from the Mare Island hayfield transect is applied to the entire 7.3 miles (11.7 km) of the proposed route, an estimated 429 to 816 bird strikes could occur each year. Projecting the highest bird strike rate from that study (along the Mare Island salt pond) to the proposed 230 kV route, bird strikes would be estimated at 9,500 each year.

The Hartman et al. (1992) and Leitner (1981) bird collision studies document significantly different mortality numbers. These differences can be attributed (but not limited) to; the length of the study period, the number of sampling trips, location, type of habitat, length of transmission line segment, and incorporating bias estimates into mortality numbers.

Impact Significance: Bird Collision

Impact significance criteria relevant to the bird collision impact are the following (also stated in Draft EIR Section C.3.2.2.1):

- The project would interfere substantially with the movement of any resident or migratory fish or wildlife species
- The project would adversely affect species under the protection of the Migratory Bird Treaty Act.

Applicant Proposed Measure 10.27a⁴ (which would be superceded by Mitigation Measure B-9, if that measure is adopted) would reduce collision impacts, but with this measure, implementation of line marking would be delayed until post-construction studies determine where bird strikes occur. Following the installation of line markers, such as bird flight diverters, this impact would still not be fully mitigated because these devices would be expected to reduce impacts by only 57 to 89 percent.

As a result, bird strikes along the proposed route, which is within or adjacent to high-use bird areas along most of its length, would remain significant, a **Class I** unavoidable impact. A new mitigation measure, Mitigation Measure B-9, is recommended below to replace Applicant Proposed Measure 10.27a and would reduce the extent of collision impact, but the impact would remain significant.

C.9.2.1 Available Mitigation for Bird Collision

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- 4 **Applicant Proposed Measure 10.27a** [Note: this measure would be superceded by Mitigation Measure B-9]. Bird flight patterns and collision mortality will be monitored on portions of the line where the potential for mortality is moderate to high. Study design and significance criteria will be developed in consultation with the appropriate agencies. If significant additional mortality results from construction of the transmission line, mitigation measures such as line marking or compensation will be developed with the appropriate agencies.

If the Westerly Route Alternative is selected, PG&E will remove 5.7 miles of the Sierra 1 and 2 Transmission Line as mitigation for the possible increase in bird collisions (see Figure 3-10). The length of the Westerly Route Alternative crossing wetlands and salt ponds is 3.7 miles. It is not possible at this time to determine whether the number of birds affected would be reduced. However, monitoring studies could be initiated before the Sierra 1 and 2 Transmission Line is removed to determine the frequency of bird strikes and where the bird strikes have occurred.

In areas where bird collision risk is highest, the preferred mitigation would be to relocate the line to a lower risk area. For the northern portion of the proposed 230 kV transmission line route, the I-880-A and I-880-B Alternatives reduce bird collision risk by moving the line to the east, near the I-880 Freeway. Along the proposed route, a reroute to reduce potential collision risk is evaluated in Section C.6 above. However, there are other areas where it is not feasible to move the route, or where any other route would likely have equivalent collision impacts. In those cases, line markers must be considered.

Aside from relocating the line, line marking is generally considered the most effective and feasible method of reducing bird collisions with transmission lines. The Avian Power Line Interaction Committee (1994) described several line marking designs and their reported effectiveness in reducing bird strikes. A summary of these methods follows:

- **Aerial Marker Spheres.** International orange aerial marker spheres, traditionally used to warn aircraft of power lines, have sometimes been installed in an attempt to reduce bird collisions. The sizes most often used were 9 and 12 inches in diameter. Recommended spacing has varied, depending on the agency request and the line location. The distance between spheres generally ranges from 100 to 328 feet. Although the spheres have resulted in bird strike decreases of 40 to 54 percent (APLIC 1994), there are several drawbacks to their use, including (1) improper design or installation on conductors can cause spheres to work loose and slide into the bottom of the span, (2) adding spheres can affect line tension and structure design, and (3) the size and number of aerial marker spheres used may result in visual degradation for environments where aesthetics are important.
- **Swinging Plates.** Swinging plates have been tested, and although effective in reducing sandhill crane and waterfowl collisions by 63 percent, the aerodynamic instability proved to be damaging to the conductors. Plate movement in high winds can lead to severe damage when clamps wear through the conductor. Until swinging plates can be designed to be aerodynamically stable, swinging plates will not likely be used on transmission lines as marking devices.
- **Spiral Vibration Dampers (SVD).** Spiral vibration dampers are a preformed shape made of high-impact polyvinyl chloride (PVC), and possess excellent chemical and strength properties. They have been designed to grip a conductor tightly on one end and loosely on the other to dampen vibration that is induced by low-velocity winds of 3 to 8 miles per hour. The length of the SVD depends on the conductor size. During a 3-year study period, SVDs proved effective in reducing collisions by 61 percent (APLIC 1994).
- **Bird Flight Diverters (BFD).** Bird Flight Diverters were developed in Great Britain and have been used in Europe since the early 1970's. BFDs are a preformed shape made of high-impact PVC, which possess excellent chemical and strength properties; they are very similar to SVDs. BFDs on overhead groundwires have reduced collisions in the range of 57 to 89 percent. When spaced at 5 meter intervals on the overhead groundwires, BFDs have reduced bird collisions by 89 percent; when spaced at 10 m, they have reduced collisions by 58 percent. Larger BFDs spaced at 15 m have reduced collisions in the 65 to 74 percent range (APLIC 1994).

- **Visual Frightening Systems.** Some visual frightening systems have been tried using silhouettes of raptors. These systems are generally attached to towers, and they have not proven to be as effective as conductor or overhead groundwire attachment devices because they cannot be used mid-span, where most collisions occur. Further, birds become accustomed to the objects and will no longer avoid them (APLIC 1994).
- **Oversized Groundwires.** A limited study compared the use of an oversized groundwire (1 inch diameter) to the conventional size (0.4 inch diameter). Researchers concluded that there was no significant effect on bird response to the presence of the two different sized conductors.

C.9.2.2 *Project-Specific Mitigation for Bird Collision*

The preferred method of reducing bird collision impact is to avoid construction of transmission lines in areas with a high collision risk. Alternatives I-880-A and I-880-B are recommended because they minimize collision risk by avoiding most high-risk areas. The McCarthy Boulevard Alternative segment (moving the route to the east between Mileposts 4.7 and 5.6) is also recommended. However, there are still areas of the proposed and alternative routes where high bird collision risk exists. The following mitigation measure is recommended to reduce bird collision impacts in high risk areas to the maximum extent feasible.

B-9 To reduce bird collision impacts along the proposed or alternative transmission line routes, PG&E Co. shall install bird flight diverters in the areas defined below. Prior to installation of conductors on the new 230 kV line, PG&E Co. shall submit its recommendation for the type(s) and spacing of bird flight diverters in the identified areas to the CPUC, the U.S. Fish and Wildlife Service (both the SF Bay National Wildlife Refuge and Sacramento Ecological Services office), and the California Department of Fish and Game for review and approval. Conductors shall not be installed until the CPUC notifies PG&E Co. that agreement has been reached regarding the type and spacing of bird flight diverters required; diverters shall be installed within 30 days of installation of conductors. Locations of required bird flight diverters:

- **Proposed 230 kV Route:** Along all overhead transmission lines between Mileposts 1.7 and 6.7 for the following reasons: Mileposts 1.7 to 2.7 (salt ponds), Mileposts 2.7. to 4.1 (adjacent to the Bayside Business Park mitigation pond), Mileposts 4.1 to 4.9 (through the Fremont Airport Property and east of Newby Island Landfill), Mileposts 4.9 to 7.0 (the Coyote Creek Flood Control Basin east of the route, past the Santa Clara Valley Water District's mitigation area, and through the Water Pollution Control Plant).
- **I-880-A Alternative (if used with proposed route or Underground Through Business Park Alternative).** Between Mileposts 1.7 and 2.7 (south of Cushing Parkway through salt ponds) and between Mileposts 4.1 and 7.2 (Fremont Airport property to substation).

- **Underground Through Business Park Alternative** (if used with proposed route): Between Mileposts 1.7 and 2.7 (salt ponds), between Mileposts 4.1 and 7.2 (as described for proposed route)
- **I-880-B Alternative** (assuming use of I-880-A Alternative at north end of route): Between Mileposts 4.1 and 7.2 (as described for proposed route)
- **McCarthy Boulevard Alternative Segment.** If this alternative segment is selected, bird flight diverters shall be installed along the entire segment.

Following installation of all bird flight diverters (line markers), PG&E Co. shall begin a three-year monitoring program to determine the extent of bird collisions on each identified segment of the approved route. Existing unmarked transmission lines in similar high bird-use areas shall be monitored during the same period to allow comparisons for determining line marking effectiveness. The protocol for the study (including identification of unmarked lines to be monitored) shall be submitted to the resource agencies for review and approval prior to installation of conductors on new towers. Annual reports providing bird strike data for the new marked lines and for the existing unmarked lines shall be provided to the CPUC, the U.S. Fish and Wildlife Service (SF Bay National Wildlife Refuge and Sacramento Ecological Services office), and the California Department of Fish and Game, and a summary report shall be submitted at the end of the three-year monitoring program.

C.9.2.3 *Revised Draft EIR Text Related to Bird Collision*

Following are revisions to the Draft EIR text, based on the discussion above.

Proposed Project. On Draft EIR page C.3-73, replace **Section C.3.2.8, Unavoidable Significant Impacts**, as follows:

Bird Collisions. Bird collision potential will be reduced through the application of Mitigation Measure B-9. Studies have shown that collision rates can be reduced by 57 to 89 percent using bird flight diverters. However, due to the dynamic nature of waterfowl and shorebird habitats in the vicinity of the proposed project, it is likely that during the lifetime of the 7.3-mile project a large number of bird collisions would still occur. Loss of special status bird species and other birds protected by the Migratory Bird Treaty Act, even if reduced between 57 and 89 percent, would be considered a significant and unavoidable impact (**Class I**).

Underground Through Business Park Alternative. On Draft EIR page C.3-74, replace **Section C.3.3.1** with the following:

Unavoidable Significant Impacts. Unavoidable significant impacts, particularly bird collisions with transmission lines, would be eliminated between Mileposts 2.7 and 4.1. This would reduce bird strikes for the proposed project, but the impact would remain significant because of the overhead transmission lines constructed adjacent to high bird-use areas between Mileposts 4.1 and 7.2.

I-880-A Alternative. On Draft EIR page C.3-75, replace **Section C.3.3.2** with the following:

Unavoidable Significant Impacts. Impacts, particularly bird collisions with transmission lines, would be less-than-significant (**Class III**) between Mileposts 0.0 and approximately 1.7. Bird strikes would be unavoidable (**Class I**) between Mileposts 1.7 and 2.7. If combined with the Underground Through the Business Park alternative, bird strikes are further reduced. Bird strike impacts between Mileposts 0.0 and approximately 4.1 would be reduced to less-than-significant levels if the I-880-A and I-880-B Alternatives were combined. Unavoidable significant impacts (bird collisions) would remain between Mileposts 4.1 and 7.2.

C.9.3 Revised Mitigation Monitoring Table

In Draft EIR Page C.3-82, add rows for new Mitigation Measures B-8 and B-9 as follows under Operation (the Mitigation Monitoring, Compliance, and Reporting Program will be updated in the Final EIR):

Impact	Mitigation Measure	Location	Resp. Agencies	Monitoring or Reporting Action	Effectiveness Criteria	Timing
12: Salt Marsh Harvest Mouse and 13: Salt Marsh Wandering Shrew (Class II)	B-8 If the underground alternative is selected, underground additional 0.8 miles through Fremont Airport property. If overhead route is selected, install perching preventers in this area.	Mileposts 4.1 to 4.9 of proposed route	USFWS, CDFG, CPUC	Ensure that appropriate protection is installed, and that underground segment is installed (if required) at appropriate time	Additional predation of salt marsh harvest mouse and wandering shrew is eliminated	During construction
9. Bird Collisions (Class I)	B-9 Install bird flight diverters; monitor mortality along proposed route and at unmarked lines adjacent to similar high bird-use areas	Overhead transmission lines between Milepost 0.0 and 7.6	CDFG, USFWS, CPUC	Three-year study with specific protocol to be determined by USFWS, CDFG and CPUC; annual report provided to resource agencies and CPUC	Impact cannot be fully mitigated; due to wide variation in reported reductions in bird strikes, effectiveness criteria cannot be determined	Three years following transmission line construction